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In the Specification:

On page 38, the paragraph beginning on line 14:

As used herein, "a method of treating a hydrocarbon containing formation" may be used interchangeably with "an in situ conversion process for hydrocarbons." "Hydrocarbons" are generally defined as ~~organic material that contains~~ molecules formed primarily by carbon and hydrogen atoms. ~~carbon and hydrogen in their molecular structures.~~ Hydrocarbons may also include other elements, such as, but not limited to, halogens, metallic elements, nitrogen, oxygen, and/or sulfur. Hydrocarbons may be, but are not limited to, kerogen, bitumen, pyrobitumen, and oils. Hydrocarbons may be located within or adjacent to mineral matrices within the earth. Matrices may include, but are not limited to, sedimentary rock, sands, silicilytes, carbonates, diatomites, and other porous media.

On page 64, the paragraph beginning on line 11:

As shown in FIG. 3, in addition to heat sources 100, one or more production wells 104~~102~~ will typically be disposed within the portion of the coal formation. Formation fluids may be produced through production well 104. ~~Production well 102 may be configured such that a mixture that may include formation fluids may be produced through the production well.~~ Production well ~~102~~ 104 may also include a heat source. In this manner, the formation fluids may be maintained at a selected temperature throughout production, thereby allowing more or all of the formation fluids to be produced as vapors. Therefore high temperature pumping of liquids from the production well may be reduced or substantially eliminated, which in turn decreases production costs. Providing heating at or through the production well tends to: (1) prevent condensation and/or refluxing of production fluid when such production fluid is moving in the production well proximate to the overburden, (2) increase heat input into the formation, and/or (3) increase formation permeability at or proximate the production well.

In the Claims:

2117. (amended) A method of treating a hydrocarbon containing formation in situ, comprising:

providing heat from one or more heaters ~~sources~~ to at least a portion of the formation;

allowing the heat to transfer from the one or more heaters ~~sources~~ to a ~~selected section~~part of the formation;

controlling the heat such that an average heating rate of the part is less than about 1 °C per day in a pyrolysis temperature range of about 270 °C to about 400 °C;

wherein the ~~selected section~~part is heated in a reducing environment during at least a portion of the time that the ~~selected section~~part is being heated; and

producing a mixture from the formation.

2118. (amended) The method of claim 2117, wherein the one or more heaters ~~sources~~ comprise at least two heaters ~~sources~~, and wherein controlled superposition of heat from at least the two heaters ~~sources~~ pyrolyzes at least some hydrocarbons within the ~~selected section~~part of the formation.

2119. (amended) The method of claim 2117, further comprising maintaining a temperature within the ~~selected section~~part within ~~a~~ the pyrolysis temperature range.

2120. (amended) The method of claim 2117, wherein at least one of the one or more heaters ~~sources~~ comprises an electrical heaters~~.~~

2121. (amended) The method of claim 2117, wherein at least one of the one or more heaters ~~sources~~ comprises a surface burners~~.~~

2122. (amended) The method of claim 2117, wherein at least one of the one or more heaters ~~sources~~ comprises a flameless distributed combustors~~.~~

2123. (amended) The method of claim 2117, wherein at least one of the one or more heaters ~~sources~~ comprises a natural distributed combustors~~.~~

2124. (amended) The method of claim 2117, further comprising controlling a pressure and a temperature within at least a majority of the ~~selected section~~part of the formation, wherein the pressure is controlled as a function of temperature, or the temperature is controlled as a function of pressure.

2126. (amended) The method of claim 2117, wherein providing heat from the one or more heaters ~~sources~~ to at least the portion of the formation comprises:

heating a selected volume (V) of the hydrocarbon containing formation from the one or more heaters ~~sources~~, wherein the formation has an average heat capacity (C_v), and wherein the heating pyrolyzes at least some hydrocarbons within the selected volume of the formation; and

wherein heating energy/day *(Pwr)* provided to the selected volume is equal to or less than $h*V*C_v*\rho_B$, wherein ρ_B is formation bulk density, and wherein an average heating rate *(h)* of the selected volume is about 10 °C/day~~wherein heating energy/day provided to the volume is equal to or less than *Pwr*, wherein *Pwr* is calculated by the equation:~~

~~$Pwr = h*V*C_v*\rho_B$~~

~~wherein *Pwr* is the heating energy/day, *h* is an average heating rate of the formation, ρ_B is formation bulk density, and wherein the heating rate is less than about 10 °C/day~~.

2128. (amended) The method of claim 2117, wherein providing heat from ~~the~~ one or more of the heaters ~~sources comprises heating the selected section such that~~increases a thermal conductivity of at least a portion of the ~~selected section~~part ~~is~~ to greater than about 0.5 W/(m °C).

2140. (amended) The method of claim 2117, wherein the produced mixture comprises a non-condensable component, wherein the non-condensable component comprises molecular hydrogen, wherein the molecular hydrogen is greater than about 10 % by volume of the non-condensable component at 25 °C and one atmosphere absolute pressure, and wherein the molecular hydrogen is less than about 80 % by volume of the non-condensable component at 25 °C and one atmosphere absolute pressure.

2143. (amended) The method of claim 2117, further comprising controlling a pressure within at least a majority of the ~~selected section~~part of the formation, wherein the controlled pressure is at least about 2.0 bar absolute.

2147. (amended) The method of claim 2117, further comprising controlling formation conditions by recirculating a portion of hydrogen (H_2) from the mixture into the formation.

2148. (amended) The method of claim 2117, further comprising:

providing hydrogen (H_2) to the heated ~~section~~ part to hydrogenate hydrocarbons within the ~~section~~part; and

heating a portion of the ~~section~~part with heat from hydrogenation.

2149. (amended) The method of claim 2117, further comprising:

producing hydrogen (H_2) and condensable hydrocarbons from the formation; and

hydrogenating a portion of the produced condensable hydrocarbons with at least a portion of the produced hydrogen.

2150. (amended) The method of claim 2117, wherein allowing the heat to transfer ~~comprises increasing~~increases a permeability of a majority of the ~~selected section~~part to greater than about 100 millidarcy.

2151. (amended) The method of claim 2117, wherein allowing the heat to transfer ~~comprises substantially uniformly increasing~~increases a permeability of a majority of the ~~selected section~~part such that the permeability of the majority of the part of the formation is substantially uniform.

2153. (amended) The method of claim 2117, wherein producing the mixture comprises producing the mixture in a production well, and wherein at least about 7 heaters ~~sources~~ are disposed in the formation for each production well.

2154. (amended) The method of claim 2117, further comprising providing heat from three or more heaters ~~sources~~ to at least a portion of the formation, wherein three or more of the heaters ~~sources~~ are located in the formation in a unit of heaters ~~sources~~, and wherein the unit of heaters ~~sources~~ comprises a triangular pattern.

2155. (amended) The method of claim 2117, further comprising providing heat from three or more heaters ~~sources~~ to at least a portion of the formation, wherein three or more of the heaters ~~sources~~ are located in the formation in a unit of heaters ~~sources~~, wherein the unit of heaters ~~sources~~ comprises a triangular pattern, and wherein a plurality of the units are repeated over an area of the formation to form a repetitive pattern of units.

2156. (amended) A method of treating a hydrocarbon containing formation in situ, comprising:

heating a first section of the formation to produce a mixture from the formation;

heating a second section of the formation;

controlling the heat such that an average heating rate of the first or the second section is less than about 1 °C per day in a pyrolysis temperature range of about 270 °C to about 400 °C; and

recirculating a portion of the produced mixture from the first section into the second section of the formation to provide a reducing environment within the second section of the formation.

2157. (amended) The method of claim 2156, further comprising maintaining a temperature within the first section or the second section within ~~a~~ the pyrolysis temperature range.

2158. (amended) The method of claim 2156, wherein heating the first or the second section comprises heating with ~~an~~at least one electrical heater.

2159. (amended) The method of claim 2156, wherein heating the first or the second section comprises heating with at least one surface burner.

2160. (amended) The method of claim 2156, wherein heating the first or the second section comprises heating with at least one flameless distributed combustor.

2161. (amended) The method of claim 2156, wherein heating the first or the second section comprises heating with at least one natural distributed combustor.

2164. (amended) The method of claim 2156, -wherein heating the first or the second section comprises:

heating a selected volume (V) of the hydrocarbon containing formation from one or more heaters ~~sources~~, wherein the formation has an average heat capacity (C_v), and wherein the heating pyrolyzes at least some hydrocarbons within the selected volume of the formation; and

wherein heating energy/day *(Pwr)* provided to the selected volume is equal to or less than $h*V*C_v*\rho_B$, wherein ρ_B is formation bulk density, and wherein an average heating rate *(h)* of the selected volume is about 10 °C/day~~wherein heating energy/day provided to the volume is equal to or less than *Pwr*, wherein *Pwr* is calculated by the equation:~~

~~$Pwr = h*V*C_v*\rho_B$~~

~~wherein *Pwr* is the heating energy/day, *h* is an average heating rate of the formation, ρ_B is formation bulk density, and wherein the heating rate is less than about 10 °C/day~~.

2165. (amended) The method of claim 2156, -wherein heating the first or the second section comprises transferring heat substantially by conduction.

2166. (amended) The method of claim 2156, wherein heating the first or the second section ~~comprises heating the first or second section such that~~increases a thermal conductivity of at least a portion of the first or the second section ~~is~~ to greater than about 0.5 W/(m °C).

2186. (amended) The method of claim 2156, further comprising:

producing hydrogen (H_2) and condensable hydrocarbons from the formation; and

hydrogenating a portion of the produced condensable hydrocarbons with at least a portion of the produced hydrogen.

2187. (amended) The method of claim 2156, wherein heating the first or the second section ~~comprises increasing~~increases a permeability of a majority of the first or the second section to greater than about 100 millidarcy.

2188. (amended) The method of claim 2156, wherein heating the first or the second section ~~comprises substantially uniformly increasing~~ increases a permeability of a majority of the first or the second section such that the permeability of the majority of the first or the second section is substantially uniform.

2190. (amended) The method of claim 2156, wherein producing the mixture comprises producing the mixture in a production well, and wherein at least about 7 heaters ~~sources~~ are disposed in the formation for each production well.

2191. (amended) The method of claim 2156, further comprising providing heat from three or more heaters ~~sources~~ to at least a portion of the formation, wherein three or more of the heaters ~~sources~~ are located in the formation in a unit of heaters ~~sources~~, and wherein the unit of heaters ~~sources~~ comprises a triangular pattern.

2192. (amended) The method of claim 2156, further comprising providing heat from three or more heaters ~~sources~~ to at least a portion of the formation, wherein three or more of the heaters ~~sources~~ are located in the formation in a unit of heaters ~~sources~~, wherein the unit of heaters ~~sources~~ comprises a triangular pattern, and wherein a plurality of the units are repeated over an area of the formation to form a repetitive pattern of units.

5396. (amended) The method of claim 2153, wherein at least about 20 heaters ~~sources~~ are disposed in the formation for each production well.

5397. (amended) The method of claim 2190, wherein at least about 20 heaters ~~sources~~ are disposed in the formation for each production well.